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## FACSIMILE COVER SHEET

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PLEASE DELIVER TO: **Commissioner for Patents**

Facsimile Tel. No. (571) 273-8300

From: David M. Rosenblum  
Phone/Fax: (203) 837-2116/(203) 837-2515Re: Cryogenic Air Separation System  
for Producing Elevated Pressure Nitrogen  
S/N 10/743,797; Filed: 12/24/2003  
Our Ref.: D-21388

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Attached is a Response and a one-month extension of time for the above-mentioned case.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.: 10/743,797

Group Art Unit: 3744

Inventors: Prosser et al.

Filed: December 24, 2003

Title: CRYOGENIC AIR SEPARATION SYSTEM FOR PRODUCING  
ELEVATED PRESSURE NITROGEN Examiner: M. JonesRESPONSEVia Fax – (571) 273-8300

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Sir:

In response to the Official Action mailed March 15, 2006, please note that claims 1-19 are pending in this case. Claims 11-19 are allowed. Claims 1, 2, 4, 6 and 7 are rejected. Claims 3, 5 and 8-10 are objected to as being dependent on rejected base claims.

The Examiner rejected claims 1, 2, 4, 6 and 7 under 35 U.S.C. §102(b) as being anticipated by Howard. Applicants reverse this ground of rejection as follows.

Applicants' invention as recited in claim 1 is for a cryogenic air separation apparatus in which plant is refrigerated by passing nitrogen to a turboexpander. In the Howard patent, the plant is refrigerated by passing compressed air to a turboexpander.

More specifically, as recited in claim 1 the cryogenic air separation apparatus includes as element "b" a product compressor, a turboexpander and means for passing nitrogen from the plant to the primary heat exchanger and from the primary heat exchanger to the product compressor. Also included are means for passing nitrogen from the product compressor to the primary heat exchanger and from the primary heat exchanger to the turboexpander. As will be

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discussed, Howard does not have any means for passing nitrogen from a product compressor to a primary heat exchanger and from the primary heat exchanger to a turboexpander. It also does not have the means recited in element "c" for passing nitrogen from the turboexpander to the primary heat exchanger and from the primary heat exchanger to the booster compressor and then means for passing nitrogen from the booster compressor to the product compressor. It also does not have the element "d", namely, any means for recovering elevated pressure nitrogen from the product compressor.

As stated previously, Howard is a plant refrigerated by air. In the plant, an air stream 50 is compressed by a multistage compression unit. The resultant compressed air is divided into stream 61 and 62. Stream 61 is partly cooled in a main heat exchanger, turboexpanded in a turboexpander 19 and then introduced into a higher pressure column. Other stream, 62 is then passed to a booster compressor 15 of portion 67 and is taken from an intermediate location of the main heat exchanger and is then sent to a second turboexpander where it is then reintroduced into the main heat exchanger and recycled back to the multistage air compressor. Consequently, as stated above, it does not have any provision for refrigerating nitrogen by means of a nitrogen product compressor in which a stream is taken therefrom, partly cooled and then sent to a turboexpander and thereafter recycled to a booster compressor to recycle the stream back to the product compressor. In fact, as illustrated in Figure 1, the nitrogen product stream 79 is simply taken at pressure. As illustrated in Figure 2, as an alternative embodiment, second stream 62 can be further compressed, part of it can be sent into the main heat exchanger, turboexpanded and thereafter partly warmed and recycled back to the main air compressor where as another portion be even further compressed and sent to the higher pressure column. Consequently,

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Howard has none of the features mentioned above and therefore does not anticipate claim 1.

Since claims 2, 4, 6 and 7 depend on claim 1, Applicants submit that they should be allowable on the same basis as claim 1.

In view of the remarks set forth above, consideration of the rejection and allowance of all presently pending claims is respectfully solicited. If the claim is in condition for allowance, prompt and favorable action is hereby respectfully solicited.

Respectfully submitted,



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June 22, 2006  
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